

CLAIM AMENDMENTS

1 -- 18. (canceled)

19. (new) A device for carrying out a tomographic method with at least one multi-pinhole collimator and at least one detector for recording photons passing through the collimator, the device comprising:

a support holding an object at a spacing from the multi-pinhole collimator that is smaller than a distance between the multi-pinhole collimator and a surface of the detector such that photon-generated images partially overlap on the detector's surface,

means for tipping holes of the collimator transaxially or axially toward the object or parts thereof; and

means for relatively shifting the object and the detector in a straight-line movement while carrying out the method.

20. (new) The device defined in claim 19 wherein the means for shifting can be positioned with an accuracy of less than 0.1 mm.

21. (new) The device defined in claim 19 wherein the means for shifting is automatic.

22. (new) The device defined in claim 19 wherein the support is tiltable parallel to the detector's surface.

23. (new) The device defined in claim 19 wherein there are two of the detectors that are orthogonally aligned to each other and stationary.

24. (new) The device defined in claim 19 wherein the holes of multi-pinhole collimators are conical.

25. (new) The device defined in claim 19 wherein the holes are keel-edged.

26. (new) The device defined in claim 19, further comprising:
data-processing means for carrying out a reconstruction method.

27. (new) A method of carrying out a tomographic method with a device according to claim 19 comprising the steps of:

setting spacings between the holes in the multi-pinhole collimator and a size and position of the object such that photon generated images partially overlap on the detector's surface,
changing the relative position between the object and detector with straight-line movement of the object or of the detector,

using holes of the collimator that are tilted transaxially or axially toward the object or parts thereof, and
carrying out a reconstruction method considering the position between detector(s) and object and considering each individual hole geometry and hole tilt in axial and transaxial direction such that different perspectives of the object are explored and thus depth information of the object is augmented by repeatedly changing the relative position between object and detector by straight-line movement of the object or detector.

28. (new) The method defined in claim 27 wherein the relative position between an object and detector is changed with an accuracy of less than 1 mm.

29. (new) The method defined in claim 27 wherein the detector or the object are shifted in a straight line or rotationally.

30. (new) The method defined in claim 27 wherein the reconstruction method is modeled on a PC.

31. (new) A computer program provided to interact with a data processing unit such that the data processing unit performs the reconstruction method defined in claim 27.